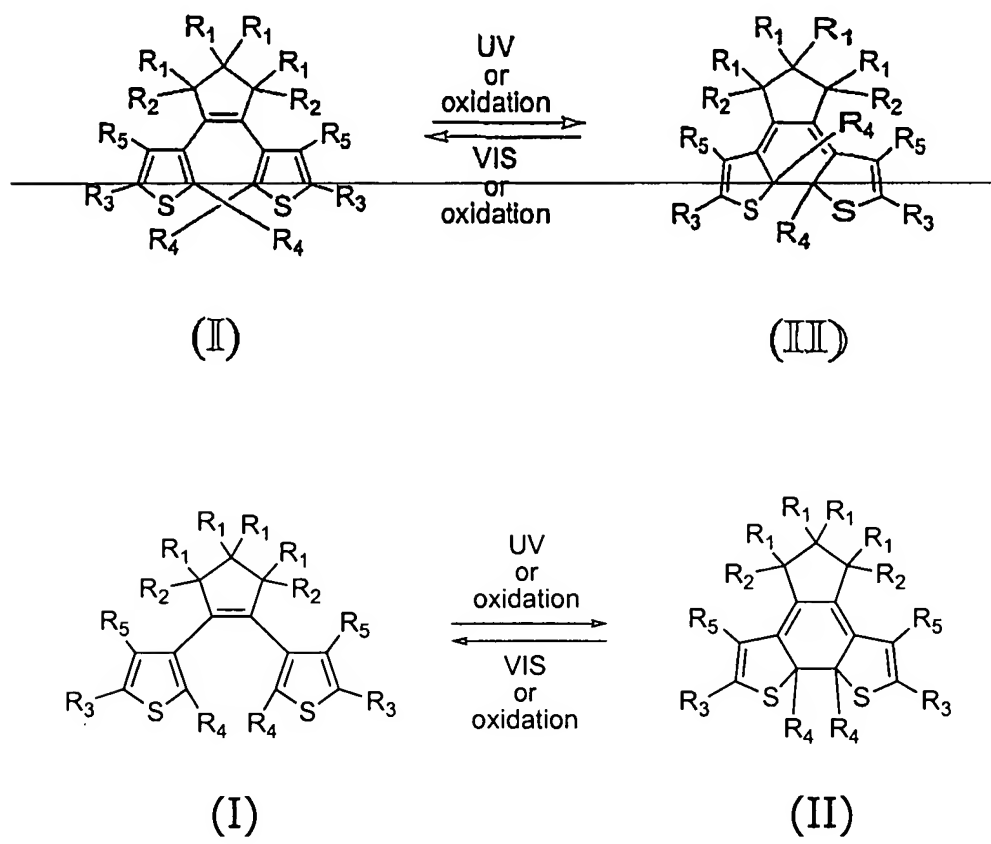


AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

LISTING OF THE CLAIMS

1. (Currently amended) A compound reversibly convertible between a ring-open isomer (I) and a ring-closed isomer (II):





wherein:

each R₁ is independently selected from the group consisting of H and a halogen;

each R₂ is independently H, a halogen, or both


R₂ when taken together form CH=CH, or R₂ is CH=CH and forms part of a polymer backbone;

each R_3 is independently selected from the group consisting of H, a halogen,

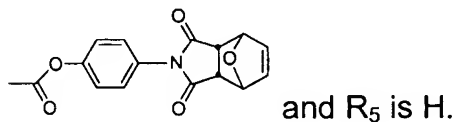
CO_2Y ($\text{Y}=\text{H}$, Na, alkyl, aryl),  and  ($\text{X}=\text{N}, \text{O}, \text{S}$);

R_4 is aryl; and

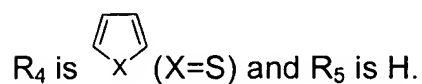
each R_5 is independently selected from the group consisting of H, alkyl and aryl, and wherein compound is convertible from said ring-open isomer (I) to said ring-closed isomer (II) under photochemical conditions and from said ring-closed isomer (II) to said ring-open isomer (I) under electrochemical conditions.

2. (Cancelled)
3. (Previously presented) The compound as defined in claim 1, wherein said compound is also convertible from said ring-closed isomer (II) to ring-open isomer (I) under photochemical conditions and from said ring-open isomer (I) to said ring-closed isomer (II) under electrochemical conditions.
4. (Previously presented) The compound as defined in claim 1, wherein said compound is also convertible from said ring-closed isomer (II) to said ring-open isomer (I) under photochemical conditions.
5. (Previously presented) The compound as defined in claim 1, wherein said compound is also convertible from said ring-open isomer (I) to said ring-closed isomer (II) under electrochemical conditions.
6. (Previously presented) The compound as defined in claim 1, wherein the electrochemical conversion between said isomers (II) and (I) is catalytic.
7. (Original) The compound as defined in claim 1, wherein R_1 is F.
8. (Original) The compound as defined in claim 1, wherein R_1 and R_2 are F, R_3 and R_4 are  ($\text{X}=\text{S}$) and R_5 is H.

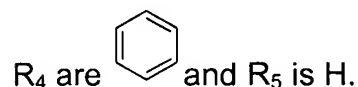
9. (Previously presented) The compound as defined in claim 1, wherein R_1 and R_2 are F, each R_3 is independently selected from the group consisting of aryl and



10. (Original) The compound as defined in claim 1, wherein R_1 and R_2 are F, R_3 is H,



11. (Original) The compound as defined in claim 1, wherein R_1 and R_2 are F, R_3 and



12. (Cancelled)

13. (Cancelled)

14. (Cancelled)

15. (Cancelled)

16. (Cancelled)

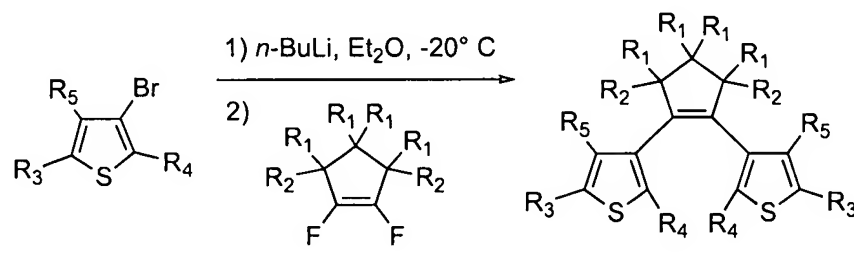
17. (Previously presented) The compound as defined in claim 1, wherein R_1 is H, R_2 is HC=CH and forms part of the polymer backbone, R_3 is Cl and R_5 is H.

18. (Previously presented) The compound as defined in claim 1, wherein R_1 is H, R_2 is HC=CH and forms part of the polymer backbone, R_3 is CO₂CH₃ and R_5 is H.

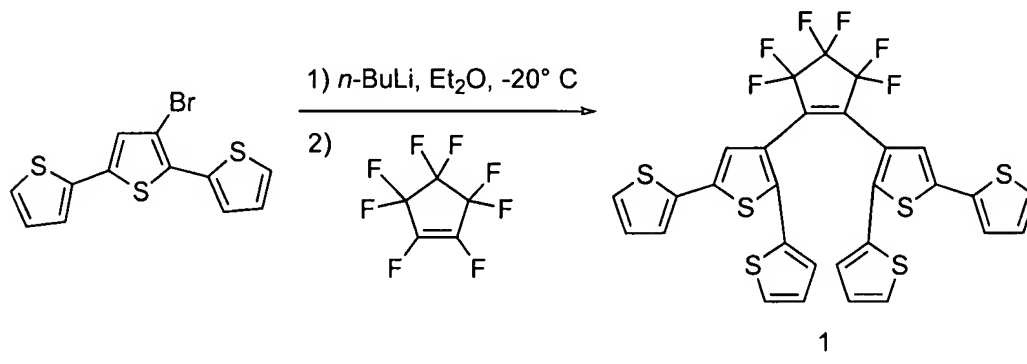
19. (Previously presented) The compound as defined in claim 1, wherein R_1 is H, R_2 is HC=CH and forms part of the polymer backbone, R_3 is CO₂H and R_5 is H.

20. (Previously presented) A polymer comprising the compound of claim 1, wherein R_2 is $\text{CH}=\text{CH}$ and forms part of the polymer backbone.
21. (Original) The polymer as defined in claim 20, wherein said polymer is a homopolymer.
22. (Original) The polymer as defined in claim 21, prepared by ring-opening methathesis polymerization.
23. (Currently amended) A method of preparing a compound according to claim 1, comprising carrying out the reaction steps set forth in any one of: ~~Schemes 2, 6, 8, 10, or 12.~~

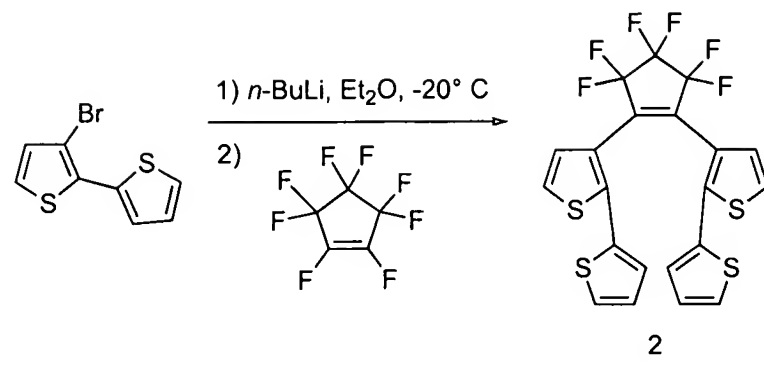
Scheme 2:



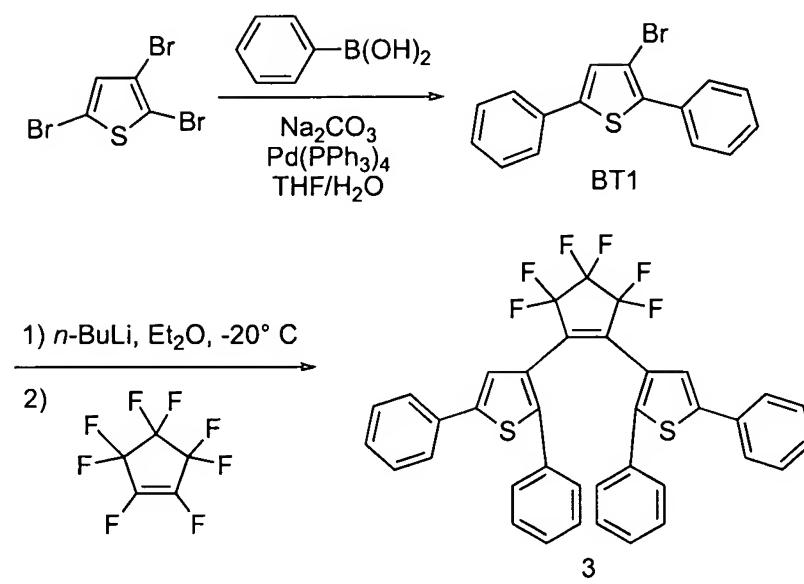
Scheme 6:



Scheme 8:

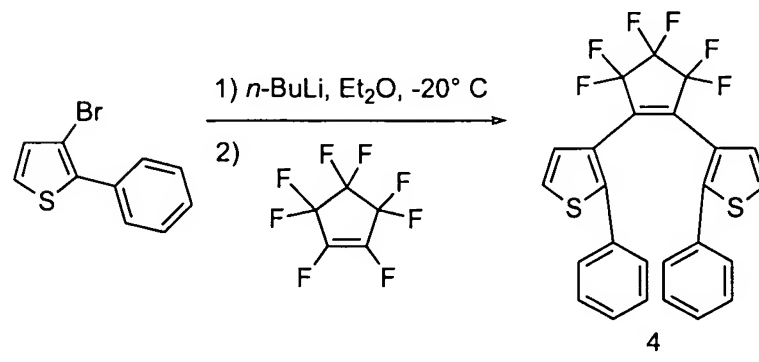


Scheme 10:

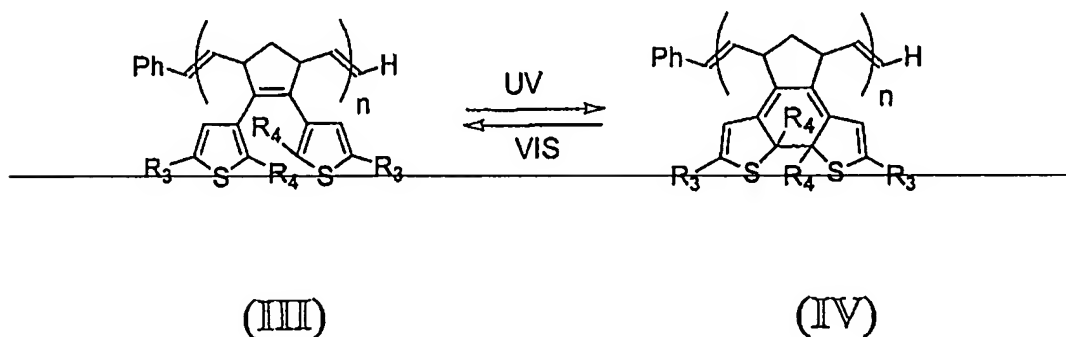


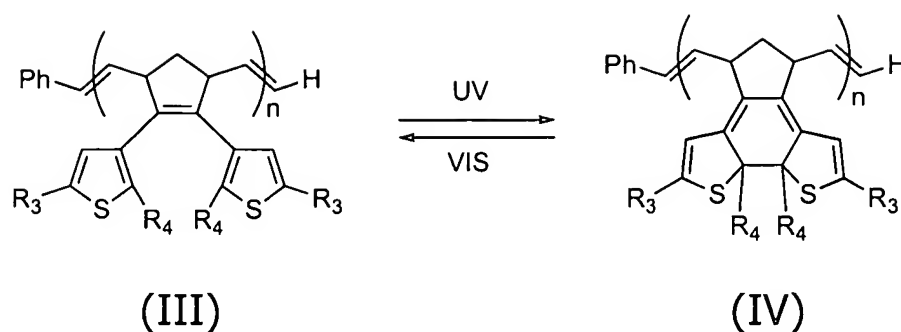
and

Scheme 12



24. (Previously presented) A method of using a compound according to claim 1 in an electrochromic and/or photochromic device.
25. (Previously presented) The method according to claim 24, wherein said electrochromic and/or photochromic device is:
- (1) ophthalmic lenses-eyeglasses that change color depending on the ambient light;
 - (2) an actinometric device;
 - (3) a molecular sensor;
 - (4) photochromic ink;
 - (5) photochromic paint;
 - (6) photochromic fibers;
 - (7) a variable transmission filter;
 - (8) a high-density optical information storage system;
 - (9) photo-regulated molecular switches that can be incorporated into molecular scale machinery;
 - (10) an optoelectronic system;
 - (11) a reversible holographic system; or
 - (12) molecular switches in molecule-based wires and circuitry.
26. (Currently amended) A polymer comprising a compound interconvertible between a ring-open isomer (III) and a ring-closed isomer (IV):





wherein each R_3 is independently selected from the group consisting of H, a

halogen, CO_2Y ($\text{Y}=\text{H}$, Na, alkyl, aryl), and ($\text{X}=\text{N}, \text{O}, \text{S}$) and n is between 10 and 100.


27. (Previously presented) The polymer as defined in claim 26, wherein each R_3 is independently selected from the group consisting of Cl, CO_2CH_3 and CO_2H .

28. (Previously presented) The compound as defined in claim 1, wherein:
each R_2 is independently H or a halogen, and
each R_3 is independently selected from the group consisting of H, a halogen,
 CO_2Y ($\text{Y}=\text{aryl}$), and ($\text{X}=\text{N}, \text{O}, \text{S}$).



29. (Previously presented) The compound as defined in claim 1, wherein:
each R_2 is independently H or F;

each R_3 is independently selected from the group consisting of H, a halogen
and ($\text{X}=\text{N}, \text{O}, \text{S}$), and
 R_5 is H.


30. (Previously presented) The compound as defined in claim 1, wherein:
 R_1 and R_2 are F;

each R_3 is independently selected from the group consisting of H and  (X=N,O,S), and R_5 is H.


31. (Previously presented) A method of preparing a polymer having electrochromic and photochromic properties, comprising utilizing a compound as defined in claim 1, wherein each R_2 is independently H or F, or both R_2 when taken together form CH=CH.


32. (Previously presented) The polymer as defined in claim 20, wherein:
 R_1 is F;
 each R_3 is independently selected from the group consisting of H, a halogen,  and  (X=N,O,S); and R_5 is H.

33. (Previously presented) The polymer as defined in claim 20, wherein R_1 is F.



34. (Previously presented) The polymer as defined in claim 20, wherein R_1 is F, R_3 and R_4 are  (X=S) and R_5 is H.

35. (Previously presented) The polymer as defined in claim 20, wherein R_1 is F, R_3 is aryl and R_5 is H.

36. (Previously presented) The polymer as defined in claim 20, wherein R_1 is F, R_3 is H, R_4 is  (X=S) and R_5 is H.

37. (Previously presented) The polymer as defined in claim 20, wherein R_1 is F, R_3 and R_4 are  and R_5 is H.

38. (Previously presented) A polymer comprising a main chain and the compound of claim 1, wherein each R_2 is independently selected from the group consisting of H and F; and each R_3 is independently selected from the group consisting of H, a

halogen, CO_2Y ($\text{Y}=\text{H}$, Na, alkyl, aryl),  and  ($\text{X}=\text{N}, \text{O}, \text{S}$), wherein at least one R_3 is CO_2Y ($\text{Y} = \text{aryl}$) and links the compound to the main chain of the polymer.

39. (Previously presented) A method of preparing a film, sheet, fiber or bead having electrochromic and photochromic properties, comprising utilizing a polymer as defined in claim 20.
40. (Previously presented) A method of preparing a film, sheet, fiber or bead having electrochromic and photochromic properties, comprising utilizing a polymer as defined in claim 38.
41. (Previously presented) A method of using a polymer according to claim 20 in an electrochromic and/or photochromic device.
42. (Previously presented) A method of using a polymer according to claim 38 in an electrochromic and/or photochromic device.